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June 28, 1990

Re: Indian Point Unit No. 2  
Docket No. 50-247

Document Control Desk  
US Nuclear Regulatory Commission  
Mail Station P1-137  
Washington, DC 20555

SUBJECT: Preventive Maintenance Program Recommendations for Containment  
Spray System (Reference Inspection Report 50-247/90-08)

As a result of the routine safety inspection No. 50-247/90-08 conducted by Mr. Leonard J. Prividy and Mr. Donald L. Caphton to resolve the findings of the special maintenance team inspection No. 50-247/89-80, we committed to submit the results of an evaluation of preventive maintenance recommendations for the containment spray system. The attachment to this letter contains a summary description of the program methodology and a summary table of recommended preventive maintenance tasks for the containment spray system.

Should you or your staff have any questions regarding this matter, please contact Mr. Charles W. Jackson, Manager, Nuclear Safety and Licensing.

Very truly yours,



Attachment

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ATTACHMENT

PREVENTIVE MAINTENANCE PROGRAM  
RECOMMENDATIONS FOR  
CONTAINMENT SPRAY SYSTEM

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.  
INDIAN POINT UNIT NO. 2  
DOCKET NO. 50-247  
JUNE, 1990

PREVENTIVE MAINTENANCE PROGRAM RECOMMENDATIONS  
FOR CONTAINMENT SPRAY SYSTEM

The Preventive Maintenance (PM) Program recommendations for the Containment Spray (CS) system were developed using a draft document entitled "Station Guideline for Evaluation of Systems in Developing a Preventive Maintenance Program". This document was provided to the NRC inspectors during the inspection.

The program development consisted of the following steps:

1. Identification of System Functions

Three functions were identified:

- o to provide water to the spray nozzles to reduce containment pressure and temperature following a loss of coolant accident (LOCA) or a steam line break;
- o to supply sodium hydroxide to the suction of the CS pumps to remove iodine from the containment atmosphere released as a result of a breach in the fuel cladding after a LOCA;
- o to provide a means to test the system.

2. Identification of System Interfaces

Interfaces consist of electrical power, safeguards actuation signals, air supply, the Refueling Water Storage Tank (supply of borated water), chemical addition, nitrogen supply, and the Residual Heat Removal system.

3. Identification of Critical Components

A critical component is one whose failure could affect the function of the system. Approximately 50 critical components were identified for the CS system.

4. Identification of Failure Modes and Possible Effects

Identify the possible failures of the critical components and the effect each would have on the function of the system.

5. Compile Failure History of the Critical Components

Failure history consists of all available sources such as station work orders, industry experience, INPO, vendor notices, NRC Information Notices and Bulletins, etc.

6. Failure Modes and Effects Analysis (FMEA)

This method of analysis identifies the effect on the local area, the systems, and the plant if the item failed using the failure modes identified in step 4 above.

7. Perform a Task Selection Logic

Define condition-directed or time-directed PM activities which might prevent the failures.

8. Perform a PM Task Comparison Summary

The results of the evaluation are compiled in the PM Task Comparison Summary provided as part of this attachment. Some of the highlights of the summary are:

- o recommend examination of welds in 3 and 10 inch piping for indications of intergranular stress corrosion cracking;
- o predictive maintenance monitoring in lieu of time based overhauls is recommended for the CS pumps and motors;
- o recommend diaphragm replacement on a time based frequency for Grinnel-Saunders diaphragm valves;

All the information and documentation developed to support this evaluation are available for review upon request.

An effort is underway to determine how and to what extent this approach might beneficially be applied to other systems. We have initiated a comparable evaluation of a second system (Auxiliary Feedwater), and our goal is to complete the evaluation of 19 more systems within the next three years.

PM TASK COMPARISON SUMMARY

SYSTEM: Containment Spray

Date: May 11, 1990

<u>COMPONENT</u>	<u>CURRENT PM/SURV./INSP. PROGRAM</u>		<u>OPTIMIZED PM RECOMMENDATIONS</u>			
	<u>TASK DESCRIPTION</u>	<u>FREQ.*</u>	<u>RECOMMENDED ACTION</u>	<u>TASK DESCRIPTION</u>	<u>REC. FREQ.*</u>	<u>REMARKS</u>
1. 12" & 10" Suction Piping			add	UT 10% butt welds each size for IGSCC	120	Add to ISI program
2. 865A&B 10" Aloyco Gate Valves			add	Lube stem & bushing	24	Install live load
3. Motor & Pump	Overhaul pump	54	delete			Not an applicable and effective task
			add	Vibrations & lube samples	**	Establish baseline
			add	Check coupling alignment Check anchor bolt torque Megger motor	12 12 12	Overhaul/replace based on results
4. 866A-D 8" Aloyco MOV-Gate Valves	Exercise and time test	3	retain			
	Inspect	Alt RFO	retain			
			add	Motor load signature	Alt RFO	Activity planned by System Engineer

COMPONENT	CURRENT PM/SURV./INSP. PROGRAM		OPTIMIZED PM RECOMMENDATIONS			
	TASK DESCRIPTION	FREQ.*	RECOMMENDED ACTION	TASK DESCRIPTION	REC. FREQ.*	REMARKS
5. 867 A&B 8" Aloyco 8" West. Check Valves	Leak rate and exercise per App J	***	retain			
			add	Acoustic monitoring		Note 1
6. 869 A&B 8" Aloyco MOV-Gate Valves	Exercise and time	3	retain			
	Stroke test-leak rate test	RFO	retain			
	Inspect	Alt RFO	retain			
			add	Motor load signature	Alt RFO	Activity planned by System Engineer
7. Contain- ment Spray Nozzles	PT-3Y8 Section XI test	60	retain			Passive component
8. 1842 A&B Vacuum Breakers			add	Inspect	Alt RFO	Establish baseline
9. 1815 SV Crosby JMAK			add	Inspect and test	60	Obtain spare valve
10.872 3/4" Globe Valve						Note 2

<u>CURRENT PM/SURV./INSP. PROGRAM</u>			<u>OPTIMIZED PM RECOMMENDATIONS</u>			
<u>COMPONENT</u>	<u>TASK DESCRIPTION</u>	<u>FREQ.*</u>	<u>RECOMMENDED ACTION</u>	<u>TASK DESCRIPTION</u>	<u>REC. FREQ.*</u>	<u>REMARKS</u>
11. Sodium Hydroxide Tank & 3" Piping			add	Inspect tank, replace gasket UT 10% of piping for IGSCC	120	Items 11, 12, 13, & 14 to be worked as one task
12. 1841 3" Saunders Diaphragm Valve			add	Replace diaphragm	120	
13. 876 A&B 3" Saunders Air Operated Diaphragm Valves	Section XI exercise & fail safe test	***	retain			
			add	Replace diaphragm	120	
			add	Overhaul air operator	Alt RFO	
14. 1839 A&B 3" Saunders Diaphragm Valves			add	Replace diaphragm	120	
15. 1838 A&B 3" Aloyco Check Valves			add	Inspect	120 Alt 60	Note 1
16. Eductor	PT-Q-35	3	retain			Passive component

COMPONENT	CURRENT PM/SURV./INSP. PROGRAM		OPTIMIZED PM RECOMMENDATIONS		
	TASK DESCRIPTION	FREQ.*	RECOMMENDED ACTION	TASK DESCRIPTION	REC. FREQ.* REMARKS
17. Instru- mentation	Test PC-EM19	***	retain		
	NaOH tank level				
	LC-3300 LIT-3300 LI-3300 LT-931 LC-931 LI-931				
	PC-VIC Cal. flow meter FT-945 A & B	***	retain		
	In addition I&C calibs.	24	retain		
	FI-933 FI-930 FT-945 A&B LIT-3300 LT-931 TE-3301 TE-3302				

18. Test valves  
868A&B  
1806A&B  
3/4" Conval  
& Rockwell  
Globe Valves

Section XI leak test RFO retain

Note 2

Note 1: To be implemented after completion and review of ongoing EPRI studies on acoustic monitoring.

Note 2: 2" and under valves can be replaced within the acceptable time limit.

- \* Frequency in months unless otherwise noted
- \*\* Per Predictive Maintenance Program
- \*\*\* Frequency determined per procedure